Planning of a distribution center

A customer would like to build up a new distribution center. About **60.000 pallet places** (euro pallet) are needed. Every day about in the average **50 truck** leaves distribution center with about **1650 pallets**. In the warehouse about 2000 different articles are stored, how on 20% the article escapes to 80% (A-items) of the sales volume and 50% (C-items) of the articles achieve merely 5% sales volume.

The storage fluctuates between **1000 – 2000 palettes** per day. The **order picking part** is about **30%**, i.e., that **70%** of the items are paged out as **whole palettes**.

The trucks start uniformly between **16.00 until 21.00** o'clock, i.e. the products must stand by in the hour time for the corresponding trucks. The dispatch orders are in the morning (at 6:00) already completely known.

Questions:

Please construct the layout of a suitable distribution system:

- Develop a suitable warehouse concept for articles of the classes **A, B, C**.
- Integrate a suitable order picking concept for the distribution system.
  You can assume that all customers of a tour fitting on a truck.
- How many persons are needed for the order picking, the supplies, the receipt of goods (**5 min. per pallet**) and the outgoing of goods **(30 min. per truck**)?
- Which information technology do you propose?
- How large the different areas must be (storage, order picking, aisles, packing, consolidation, outgoing goods and incoming good)?
- Calculate the costs of your concept?

Procedure:

- Determination of the necessary **functional surfaces** (e.g. incoming goods, outgoing goods, storage areas)
- Identification of the **material flows** and **volumes**
- Determination of the **transported goods** (transport equipment, standards, etc.)
- Determination of the relevant **processes** (storage, retrieval, etc.)
- **Design aspects** (storage organization, ergonomics, safety, economy)
- Determining the **degree of automation**
- Development of a **layout** (detailed design)
- **Personnel concept** (human resources: e.g. layer model, staff qualifications, etc.)
- **Information technology** (warehouse management systems, identification)
- **Cost composition** (investment, operating costs including depreciation)

Scope:

- **10-15 sides** as a Word- and PDF-file;
- PPT presentation approx. **10 min**.;
- Deadline: **02-04-2018**
- **Group size: up to 4 people!**

Delivery by www.moodle.uni-de.de – only 1 time per group!

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